DIFFUSING BLOGS, WIKIS AND SOCIAL NETWORKS IN THE WORKPLACE: CONSIDERING EMPLOYEE PERCEPTIONS

by

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Abstract

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Research shows that executive satisfaction and the measurable business benefits of becoming an "Enterprise 2.0" firm is directly correlated with the amount of users participating on said network (Bughin and Chui 2011). Despite high overall adoption rates worldwide, Web 2.0 tools tend to have low internal usage rates (Bughin, Manyika and Miller 2008). This dissertation aims to outline suggestions for those considering the diffusion of certain Web 2.0 communication and collaboration tools in the workplace through the examination of employee perceptions. Research shows that technology strategies often fail because executives tend to discount the importance of considering employee perceptions when developing technology strategies (Hall 2000).

As such, this dissertation uses primary data to gain a better understanding of employee perceptions on three major communication and collaboration tools: blogs, wikis and social networks. It also seeks to understand the role that these perceptions play on an employee's willingness to adopt the technologies. Employee perceptions are summarized based on Everett Rogers' five forces framework (1995). This framework directly links the individual's technology perceptions to their final decision to adopt the technology, and constitutes the foundation of this research (Rogers 1995).

The findings show that, despite similar positive attitudes across all three tools, age group 19-29 and 30-49 had notably different motivations for their willingness to adopt the tools. The results suggest that each tool requires different considerations, and should be approached in different ways.

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1. Introduction

1.1 Introduction

This dissertation aims to understand two aspects of employee perceptions on blogs, wikis and social networks. The first aspect concerns general perspectives on these tools. The second aspect analyzes whether these perspectives influence their willingness to adopt the tools in the workplace. The perspectives are analyzed using the Rogers five forces framework. These tools represent Web 2.0 communication and collaboration tools. This chapter summarizes how these two aspects of Web 2.0 communication tools are investigated in this dissertation. To begin, the inspirations for investigation of this topic are explored. Then, the problem statement and research questions are established. The next section explains how this problem and consequent research questions are answered. Lastly, the dissertation overview is presented.

1.2 Background to Research

Coined by Dale Dougherty and Tim O'Reilly in 2004, Web 2.0 was a departure from the famous "Dot Com Revolution" of Web 1.0. Web 1.0 focused on merely publishing information on the Internet, whereas Web 2.0 focused on interacting amongst others concerning said information. This interaction is best by Tim O'Reilly as "adding value" to published information though the use of user generated content (O'Reilly 2005).

The business world did not miss this revolution, and Enterprise 2.0 is continually growing in importance and popularity, according to the research done by Jacques Bughin and Michael Chui (2011). Their last annual survey for McKinsey&Company in 2010 reported that out of the 3 249 executives interviewed, two thirds of the respondents are already using at least one type of Web 2.0 technology in the workplace. Two thirds of these adopters plan to increase future investments in these technologies – a 25% increase in investment from the prior year. Furthermore, almost 9 of 10 businesses are experiencing measurable business benefits from the use of Web 2.0 technology, nearly a 20% increase from 2009 (Bughin and Chui 2011). In 2009, respondents were already reporting measurable business benefits including more innovative products and services, more effective marketing, better access to knowledge, lower costs of doing business and higher revenues (Bughin, Chui and Miller 2009). Research by

Stephan Adriole explains that although Web 2.0 tools are used for a host of functions, it is primarily used for communication and collaboration within workplaces (Adriole 2010).

However, Bughin and Chui explain that there is a correlation between the amount of workers using Web 2.0 and the benefits received by the companies (2011). Out of the three types of Web 2.0 adopting organizations, the fully networked enterprise is significantly correlated with measurable business gains in market share, operating profits and market leadership relative to internal or external networked organizations (Bughin and Chui 2011). However, according to the 2008 McKinsey&Company study, companies using Web 2.0 tools have, on average, only one in four employees using these tools (Jacques, Manyika and Miller 2008). In addition, executives dissatisfied with their Web 2.0 investment cite impediments in organizational structure and a lack of knowledge of how to use these tools to add value as their two main sources of dissatisfaction (Chui, Miller and Roberts 2009). Thus, it is assumed that there is unrealized potential with the adoption of these tools in the workplace as a result of low diffusion amongst employees in organizations, and also a lack of understanding how the tools can be used to create value.

According to Alan Hall, technology change in the workplace needs to be handled with care. One of the leading causes of failure for technological change in the workplace is executive's failure to understand employee attitudes (Hall 2000). In addition, it should be noted that research suggests that an individual's decision to adopt technology is influenced by their age. It is proposed that this may simply be a result of less exposure at a younger age for older individuals (Morris and Venkatesh 2000). Everett Rogers developed a framework to better understand individual's attitudes on technologies, and how people ultimately arrive at the decision to adopt new technology (1985). This framework measures five factors which lead to an individual's decision to adopt a technology: relative advantage, compatibility, trialability, complexity and observability. According to this theory, the user chooses to adopt when they perceive high relative advantage, compatibility, trialability, observability and a low complexity (Rogers 1985).

To summarize, the highest business benefits of adopting Web 2.0 technology is positively correlated with how widespread adoption the adoption is amongst companies, and that a better understanding of employees attitudes concerning these technologies is essential to a successful

technology rollout (Bughin and Chui 2011, Hall 2000). Moreover, the Rogers five forces can be used to evaluate an individual's attitudes on technologies, and how individuals decide to adopt them (Rogers 1985). This dissertation thus assumes that by understanding what encourages employees' willingness to adopt Web 2.0 technology, executives can reduce the risk of Web 2.0 communication and communication tool implementation failure through the addition of this knowledge. The Web 2.0 communication and collaboration tools that are evaluated in this dissertation are blogs, wikis and social networks. This is due to their consistency of being researched as communication and collaboration tools, as expanded on in the next chapter in greater detail (Adriole 2010 & McKinsey Quarterly 2011).

1.3 Problem Statement & Research Questions

The problem this dissertation seeks to answer is: *what are employee perceptions on blogs, wikis and social networks according to the Rogers five forces, and which of these forces impact their decision to adopt these Web 2.0 communication and collaboration technologies in the workplace?*

The Rogers five forces is the chosen framework to comprehend employee perceptions on Web 2.0 technologies, and as such, it is the foundation of the problem statement. Recall that Rogers directly links individual's perceptions to the decision to adopt technologies, and that the five forces are relative advantage, compatibility, complexity, trialability and observability (Rogers 1985). There, to attempt to answer the problem statement, each communication and collaboration tool needs to be evaluated twice to understand both: a) the general perception of the tool, and b) whether the particular force impacts the decision to adopt.

Research questions are used in order to suggest an answer to the problem statement. They also are structured around the Rogers five forces:

1. Do employees a) perceive a *relative advantage* in the use of Web 2.0 tools, and b) is it correlated with their willingness to adopt it blogs/wikis/social networks in the workplace?
2. Do employees a) perceive the tools as *compatible* with the nature of their work and the organizations values, and b) is this compatibility correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

3. Do employees a) perceive the tools as difficult to use [*complexity*], and b) is this difficulty correlated with their willingness to adopt blogs/wikis/social networks in the workplace?
4. Do employees a) feel they know how to use the tools [*trialability*], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?
5. Do employees a) perceive others using the tools [*observability*], and b) is this correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

1.4 Methodology

The methodology to answer the research questions is briefly explained, as follows. Primary data is collected and analyzed in order to suggest answers to the research questions. The primary data is collected via an online survey. The primary data allows for the understanding the two parts of each research question mentioned above; a) the overall perception of each force according to each technology and b) whether the force leads to the decision to adopt each technology. The overall perception of each Rogers force, (a), is evaluated to gain an understanding of the perception of each tool – for example, to understand the overall relative advantage in using a blog as perceived by employees, answering the first part of the first research question. To answer the second part of each research question, (b), multiple regression analysis is used to see whether each force sufficiently explains the willingness to adopt. For example, if relative advantage returns a sufficiently significant coefficient, then it is safe to say that there is a correlation between relative advantage and the willingness to adopt. The information returned for parts a) and b) of the research questions are then analyzed and discussed to propose an answer to the problem statement – what are the overall attitudes on blogs, wikis and social networks, and do the Rogers forces impact the decision to adopt a technology.

1.5 Outline

The next chapter, the literature review, expands on the topics explained above and provides the background information necessary to answer the problem statement. This includes background on Web 2.0, communication and collaboration tools, statistics on enterprise 2.0, the theory of Rogers' five forces and other literature necessary to properly construct the survey and propose hypotheses. Following the literature review, the chapter on methodology is presented, where the information from the literature review is applied to formulate hypotheses, and to designing the survey. The discussion analyses the results from the survey, justifies and evaluates the hypotheses from the research questions. Finally, conclusions are presented at the end of this dissertation, along with a references list.

1.6 Conclusions

The problem this dissertation seeks to understand is how employees perceive communication and collaboration Web 2.0 tools (blogs, wikis and social networks), and if these perceptions influence their willingness to adopt the tools in the workplace. The Rogers five forces is a framework for evaluating such perceptions on technologies, and how users decide to adopt them (Rogers 1985). This information is assumed to be a component to the development of Enterprise 2.0 implementation strategies, as research indicates that a) employees' perceptions are important factors in successful technology strategies, and b) the business benefits garnered from the use of these technologies is correlated with higher employee usage rates within firms (Hall 2000, Bughin and Chui 2011). The following chapter explores the background information necessary to prepare to answer the research questions in order to come closer to answering the problem statement.

2. Literature Review

2.1 Introduction

This chapter, the literature review, aims to provide sufficient background in order to proceed into the methodology section. This is done by first expanding on topics presented in the introduction, and provides the necessary literature to develop propositions to the research questions. It is divided into four sections. The first investigates Web 2.0 and seeks to understand what exactly communication and collaboration tool which better defined the problem statement. The second section expands on statistics presented in the introduction and explains the benefits of increasing the number of employees using Web 2.0 communication tools in the workplace. The third section explains why understanding the link between employees and new technology is important for technology strategy, followed by age considerations and technology in the workplace. The fourth and last section is dedicated to explaining the Rogers five forces theory.

2.2 Web 2.0 Communication and Collaboration Tools

2.2.1 Introduction

In order to effectively discover which Web 2.0 tools best fits the description of a Web 2.0 communication and collaboration tool, three areas must be analyzed: what is Web 2.0 in general, common Web 2.0 tools, and which of these tools best qualifies as a communication and collaboration tool. Thus, it is explained why blogs, wikis and social networks have been selected to represent communication and collaboration Web 2.0 tools in the problem statement of this dissertation.

2.2.2 Introduction to Web 2.0

"[There's] a huge amount of disagreement about just what Web 2.0 means," says Tim O'Reilly, the pioneer of the phrase "Web 2.0", in a 2004 conference with MediaLive International with Dale Dougherty where he explained some key features of Web 2.0 technology. As O'Reilly is the pioneer of the term, this dissertation follows his description of Web 2.0. It is important to note he states that Web 2.0 is not a physical technological

innovation; rather it is a shift in the way the Internet is actually being used compared to its predecessor, Web 1.0 (O'Reilly 2005). O'Reilly stresses that Web 2.0 is not defined as simply using the Web as a platform, since this is a feature also common to Web 1.0 technologies (2005). Web 1.0 focused on using the web as a platform to publish information, whereas Web 2.0 focuses on user participation, resulting in a rich, diverse database of information (O'Reilly 2005). According to Tim O'Reilly, as participation increases (and thus network effects increases) the service provided improves due to increased contribution (2005). Users ultimately decide what is important, as they are the one who choose to add content, and as such they are seen as "trusted co-developers" to databases (O'Reilly 2005). O'Reilly views this database as a core competency and as extraordinarily valuable, as it a source of its user's collective intelligence (O'Reilly 2005).

2.2.3 Definitions of Major Web 2.0 Communication and Collaboration Tools

Due to the wide amount of speculation concerning Web 2.0 tools and their definitions along with no principal source of what constitutes a communication and collaboration tool specifically, it is important to narrow down which tools satisfy the title of Web 2.0 communication and collaboration tool to avoid redundancy. The following tools are consistently mentioned as regular Web 2.0 tools:

Wikis: Published webpages with the ability to be created and edited by various users through a web browser. Wikipedia is the most famous example. They contain a built-in search feature, a simple site structure, support for multiple users, a wiki markup language, simple navigation and a simple workflow. Content accuracy is a concern due to the ability for anyone to edit the page; this is all security related preference dependent, however (Murgensen 2007).

Blogs: Similar to an online journal. Two way communication tool; one user is responsible for publishing content (a blog entry), and anyone who wishes to comment or share the post is permitted. Can use text, images, links to other pages. The content after publishing is instantly available to the whole web, and searchable via a search engine. Granted, these characteristics are all dependent on the settings the user enables. Examples include LiveJournal, Blogspot and Twitter (micro-blog) (Murgensen 2007).

Crowdsourcing: Outsourcing the gathering of information to the "crowd", in a voluntary way; it is not directly a tool for internal collaboration. Example: Wikipedia, although in the a Wiki, uses crowdsourcing to develop its database. Other examples include Amazon's Mechanical Turk and Second Life (Howe 2006).

Social Networks: "Social structure made of nodes, generally individuals or organizations, which are connected by one or more specific types of interdependency". Examples include Facebook, LinkedIn and Twitter (Harris 2009). Generally, these sites allow for the sharing of personal preferences, interests, and abilities (Bughin & Manyika 2007).

Folksonomies: User-created taxonomies of open-ended tags, used to organize web activities. Example, Flickr allows tags to be added to posted pictures, with no limitations on vocabulary. Users are then able to use a search engine to find photos with similar tags. Note that the tag system does not generally encourage the use of a full line of thought (Murgensen 2007).

RSS: Really Simple Syndication. A user "subscribes" to receive updates from specific websites/topics when they are published, reducing the need to continually check a website to seek updates. The information is delivered via an XML files which summarize the information and link the appropriate sources. The user is required to use a "feed reader" or "aggregator program" to literally "feed" the users the information when it becomes available. This tool links to other published items, and thus is more of a prompting system (Murgensen 2007).

Peer-to-Peer Networking (P2P): A way of sharing files, either throughout the whole Internet or to a closed-set of users. (Bughin & Manyika 2007). Beware that the existence of these networks superceed the common notion of Web 2.0, there is much debate of its qualifications as a Web 2.0 tool (O'Reilly 2001).

Virtual Worlds: Interaction in an online "world" or community via personalized avatars. Examples include Second Life, ActiveWorlds and Twinity (Harris 2009)

Mashups: Combining information and or services from multiple websites. An example is HousingMaps, which uses Craigslist sales and rental posting combined with Google Maps interactive services (Murgensen 2007).

2.2.4 Selection of Communication and Collaboration Tools

Despite these Internet tools being suited for interaction, they are not necessarily suited for collaboration and communication according to the definitions above, and also some of the tools commonly referred to precede the existence of Web 2.0. Therefore, the identification of core Web 2.0 communication and collaboration tools was necessary to paint to decide which tools to evaluate to satisfy the problem statement. This dissertation assumes that a) only tools which are *consistently present* throughout existing Web 2.0 research and that b) encourage the exchange of full sentences are considered eligible as a communication and collaboration tool.

Stephan Andriole interviewed and then surveyed 76 executives using Web 2.0 technologies evaluated six different performance areas and the level of satisfaction and which tools were most used depending on the area (2010). Communication and collaboration was seen to have the highest amount of perceived benefits out of all six areas in this study (Adriole 2010). Appendix A shows which tools are used the most for communication and collaboration purposes according to Adriole.

The measures used in the McKinsey Business and Web 2.0 Business feature also highlight the same Web 2.0 tools, including Microblogging, Peer-to-Peer, Video Sharing and Podcasts (McKinsey Quarterly). This information is presented in Appendix B. Please note that this table does not focus exclusively on communication and collaboration as the prior did, but does indicate which tools are being used the most in companies with 51% of employee Web 2.0 use, and helped indicate which tool to choose (McKinsey Quarterly).

Table 2 presents podcasts and videosharing as Web 2.0 tools (McKinsey Quarterly). Despite fitting the above definition for Web 2.0 communication tools, since all other researchers included in this paper have excluded it, it is safer to not include it here without further research. Therefore, with the commonalities in the above information from both McKinsey and Andriole along with the definitions of Web 2.0 technologies, we assume that the tools most used for communication and collaboration are: wikis, blogs, social networks, mashups, folksonomies, RSS and peer-to-peer networks. However, peer-to-peer networks have extensive debates upon whether they are actually a Web 2.0 technology and in fact precede the existence of Web 2.0, in order to keep consistency it cannot be included (O'Reilly 2001).

Moreover, RSS feeds and folksonomies are a notification system and a tagging system respectively, and do not necessarily allow for the exchange of full thoughts and thus must be eliminated, according to this dissertation's definition established earlier. Mashups are combinations of various tools, and thus there is a high risk for redundancy and possibilities and must also be excluded (Murgensen 2007). The only tools which are both consistent across Web 2.0 communication and collaboration tool research are blogs, wikis and social networks.

2.2.5 Conclusion

The section above justifies why blogs, wikis and social networks were chosen to represent communication and collaboration Web 2.0 tools. This was necessary due to no pre-existing source of what officially constitutes a collaboration and communication Web 2.0 tool.

2.3 The Fully Networked Enterprise

This section seeks to expand on why Web 2.0 technology is an important area to investigate by providing more statistics of the usage of this technology from the surveys cited in the introduction. It explains that there are scale benefits to using the technology across organizations. It also briefly mentions projected investment trends in the area.

Several sources cite perceived benefits from the use of these technologies; in particular, the 2009 McKinsey Global Web 2.0 survey cited that sixty nine percent of all respondents report measurable business benefits in the following areas: more innovative products and services, more effective marketing, better access to knowledge, lower cost of doing business and higher revenues (Bughin, Chui, Miller 2009). In the latest survey, this number had increased to almost 9 out of 10 Web 2.0 companies gaining measurable benefits from the use of these technologies, across business metrics such as gains in market share, operating margin and market leadership (Bughin and Chui 2011).

The dissatisfied users have problems with implementing the technologies due to organizational structures and a lack of understanding of how to create value using these tools (Chui, Miller and Roberts 2009).

The success of Enterprise 2.0 seems to stem from the fact that as the amount of people participating increases, the value of the content also increases (Bughin 2011). Bughin states

that not only is daily Web 2.0 use amongst employees the key success factor to benefit from these tools, but also that its benefits are low without higher levels of adoption and usage (Bughin 2011). Bughin, Manyika and Miller in 2008 reported that the usage of Web 2.0 tools is uneven throughout most companies, and only one in four uses Web 2.0 tools. The companies most satisfied with the results from using Web 2.0 tools, a quarter of them have more than fifty percent of all employees using the tools (Bughin, Mayika, Miller 2008).

Investment in Web 2.0 tools is growing, which is an excellent sign for those considering investing in fully networked enterprises, as mentioned, the greatest benefits are expected from those who manage to incorporate these tools not only internally, but externally as well. Oliver Young of Forrester Research states:

> "Our most recent Web 2.0 survey demonstrates that despite early frustrations, a growing number of companies remain committed to capturing the collaborative benefits of Web 2.0. Since we have first polled global executives two years ago, the adoption of these tools have continued. Spending on them is now a relatively modest $1 billion, but the level of investment is expected to grow by more than 15 percent annually over the next five years, despite the current recession." (Young 2009).

Therefore, investigation into what factors affect employee adoption of Web 2.0 collaboration tools, whether it be lack of awareness, impeding company values, complexity, etc. provides insight on how to best develop strategies in order to capture these business benefits, and follow the Web 2.0 adoption trend.

2.4 The Link Between Employee Perception and Information Technology Strategy

This section further explains the importance of researching employee perceptions as the problem statement. Research on the link between understanding employee perceptions and developing information technology strategies with higher chances of success is presented here.

One of the main causes of failure to introduce new technology in firms is due to employee resistance. Very often, executives discount the importance of employee's attitudes toward technologies, which is the leading cause for adoption failure (Hall 2000). This lack of executive planning can be avoided by better understanding the needs of the employees. Hall

states, “resistance to change from lack of training or support – or fear that jobs will be lost – is the main cause of failure” (Hall 2000).

Therefore, understanding employee perceptions and attitudes is an important part of integrating new technology in the workplace, as there are higher chances of failure when this factor is ignored. One of the most famous frameworks to measure individual’s perception and the adoption of technology is the Rogers five forces.

2.5 Age and Computers

Michael Morris and Viswanath Venkatesh performed a study which demonstrated that older individuals are less inclined to initially adopt new technology than younger individuals (2000). In particular, their research was focused on user reaction and technology usage behaviour in the workplace (Morris and Venkatesh 2000). The study was conducted over a 5 month period with a sample of 118 workers, who could voluntarily opt to use a new software in the firm analyzed (Morris and Venkatesh 2000). In the short term, Morris and Venkatesh reported significant differences in accepting new technologies in the workplace between younger and older workers using hierarchal regression analysis (age is a continuous value) (2000). Older workers resisted adopting the new technologies and opted to continue to use the traditional methods (Morris and Venkatesh 2000). In the long term, after three months of experience with the new technology, the older workers showed similar attitudes to the younger workers and were more inclined to accept using the new technology (Morris, Venkatesh 2000). This research suggests that it is important to collect demographic information on age when collecting primary data, as age influences the attitudes of accepting new technologies in the workplace.

2.6 The Rogers Five Forces: Diffusion Theory

2.6.1 Introduction

At this point, this dissertation returns to the main framework used to evaluate employee attitudes from the problem statement. This begins with explaining the theory of diffusion of technologies by Rogers. This includes his five step decision process and the five forces theory used in this dissertation (1995). After the general five forces theory is explained, this section

dedicates a section to a deeper explanation of each of the five forces. This information is later used to select hypotheses, presented in the following chapter.

2.6.2 Everett Rogers and the Diffusion of Technology

Everett Rogers' conducted research on the diffusion of innovations to ultimately provide insight into how to speed up the rate of diffusion of an innovation within a social system (Rogers 1995). In this case, the social system being examined is the work place, and the innovation being investigated is Web 2.0 communication and collaboration tools. It is important to note that Rogers uses the word "innovation" interchangeably with "new technology"; as discussed in a chapter on his research's criticisms, he does not want to make the assumption that the technology being investigated is an "innovation" that completely annihilates the previous standard (100% adoption) or that while the innovation is diffusing it is becoming reinvented and thus changes the data collected (Rogers 1995). Rogers has designed several models to illustrate why and how fast technology diffuses within a social system, and his work extensive work on diffusion is considered the current standard (1995).

Everett Rogers developed an innovation-decision process to understand how a decision-making unit ultimately decides to adopt a new technology (1995). Potential technology adopters go through five steps before ultimately deciding to adhere to a new technology, being: 1. Knowledge, 2. Persuasion, 3. Decision, 4. Implementation and 5.Confirmation (Rogers 1995). Rogers explains the five steps; knowledge consists of the initial exposure to the basic idea of the innovation and its function, persuasion consists of establishing an attitude, either favourable or unfavourable, toward the innovation. The decision step explains the activities the adopter engages in to choose to adopt or reject the innovation. Lastly, the implementation step is the individual actually putting the technology to use, and confirmation is reinforcing the innovation decision (Rogers 1995).

For this dissertation, the perception (attitudes) portion of the innovation-decision process is investigated, in order to understand employee attitudes on the topic of Web 2.0 (Rogers 1995). Rogers isolated five attributes of innovations that were universally relevant, mutually exclusive and but also interrelated (1995). These are called the Rogers Five Forces: relative advantage, compatibility, complexity, trialability and observability (Rogers 1995). The rate of

adoption within a social system increases the higher the perceived relative advantage, compatibility, trialability, observability and lower complexity (Rogers 1995). Rather than using this attitude information to understand to its full extent to understand the rate of adoption, this dissertation simply investigates the attitudes in order to understand the decision, or willingness, to adopt.

2.6.3 Relative Advantage

Relative advantage is the first of the Rogers five forces. He defines relative advantage as the degree to which an innovation is perceived as superior to the idea preceding it (1995). He states that relative advantage can have many facets, most notably being economic status, social status and superior functionality (Rogers 1995). He presents the example of the power of social status – this is purely the cause of most purchases of designer clothing, since there is rarely ever any superior functional benefit (Rogers 1995). Evidently, if one is able to perform a function in a more efficient way than before, such as a decrease in discomfort, saving time/effort or speeding up the immediacy of the reward, there is a perceived relative advantage according to Rogers (1995). Also, a relative advantage can be perceived in attempting to avoid the possibility of some future event, otherwise known as preventative innovation (Rogers 1995). Relative advantage is a test of the reward or punishment present in the adoption of a technology (Rogers 1995). Therefore, Rogers identifies three markers of relative advantage: economic, social status and functionality (1995).

In order to identify further narrow down which would be the best possible relative advantages to investigate for Web 2.0 collaboration and communication technologies, the McKinsey Quarterly Web 2.0 survey reported in Spring 2011 and Stephan Andriole's survey from 2010 is used for further inspiration. Respondents were asked to identify where benefits were achieved using Web 2.0 technologies either for internal, customer-related purposes or external purposes (McKinsey Quarterly). According to McKinsey's survey, it seems that economic profitability, facilitating and accelerating communication and speeding up operations were reported notable benefits from using Web 2.0 technologies (McKinsey Quarterly). Andriole, his survey methods already explained in the collaboration and communication tool section, evaluated the utility of the tools using four measures: the ability to coordinate discussions, the ability to reach more people faster, the ability to synchronize projects and tasks, and the ability

to audit communication streams (2010). This ability is evaluated on a four-point scale, from "not at all" to "a great deal". Results from 76 executives show that out of the four areas, the majority of respondents declare a "somewhat" improvement in all areas; coordinating discussions, reaching people faster, and synchronizing projects and audit communications streams (Andriole 2010).

Using the three above stated sources of what constitutes a relative advantage, the following advantages assume to be in common: profitability (lowering costs), accelerating communication exchange, facilitating collaboration, synchronizing tasks and exchanging information. This dissertation assumes that this is a fair way to evaluate relative advantage, and is the basis for the survey questions based on relative advantage.

2.6.4 Compatibility

Compatibility is the second listed Rogers five forces (1995). Rogers noted that innovations are rarely adopted if they go against cultural values in a social system, despite their functionality (1985). An example is the failed adoption of boiling water in a Peruvian Village – despite its proven effectiveness to dissuade diseases such as typhoid, boiling water simply did not fit with the culture, which believed that "hot" foods are only for the sick, not for preventative measures (Rogers 1985).

Apart from cultural values, radical new ideas have a higher level of risk associated with them (Rogers 1985). Thus, the rate of adoption of an innovation is highly dependent on the idea that it supersedes (Rogers 1985). As Rogers states, "one cannot deal with an innovation except on the basis of the familiar and the old fashioned" (1985). This compatibility between the old and the new can either speed up, or delay the rate of adoption (Rogers 1985).

Thus, to answer this research question, we assume that evaluating whether the company has the resources available and the appropriate technologic culture to adopt the technology, and whether the individuals' job requires group work can measure compatibility. So for part a) of the research question, company resources, company culture and individual skill and work function is evaluated to evaluate perceptions on compatibility.

2.6.5 Complexity

The third Rogers five forces is complexity (Rogers 1985). Rogers' definition of complexity is "[the] degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers 1985). His logic is that the harder a technology is to understand, the less likely someone would be willing to adopt it into their lives (Rogers 1985). Rogers states that the complexity of an innovation is negatively related to the rate of adoption (Rogers 1985).

2.6.6 Trialability

Trialability is the fourth Rogers five forces (1985). Trialability implies the possibility of conducting a trial, or experimental period, with the technology seeking diffusion (Rogers 1995). Rogers states that through the use of trials, subjects decline their perceived risk of adopting a technology, as this allows hands-on insight to how the product may be useful for them – verbal descriptions may not be enough to grasp the value of an innovation (Rogers 1995). Rogers states that trialability is positively related to the rate of adoption (Rogers 1985).

In this case, this dissertation assumes that trialability can be evaluated with the user's ability to browse content, publish content, and add to pre-published content, and thus this is what is evaluated in the survey. For example, whether a user can browse blogs, post blog entries, or comment on blog entries; whether a user can browse wiki pages, publish their own wiki page, and edit a wiki page; whether a user can browse pages on a social network, create their own profiles, or comment on existing data on social networks. Therefore, part a) of the question is evaluated by understanding the user's ability to browse, add and add-to content on these Web 2.0 tools.

2.6.7 Observability

Observability is the fifth Rogers five forces (1985). Rogers defines observability as "[the] degree to which the results of an innovation are visible to others" (Rogers 1985). Simply stated, if a subject sees the innovation being used, there is a higher likelihood that they themselves may consider to using it, for a plethora of reasons (Rogers 1995). Seeing an innovation used by another person diminishes the uncertainty of the adoption of the product (Rogers 1985).

This dissertation assumes that whether someone has seen or heard of the tool from another person before is a sufficient way to evaluate observability from others.

2.6.8 Conclusion

Section 2.5 was dedicated to explaining the main framework used in the research questions, the Rogers five forces. It began by explaining the general theory, and then proceeding to explain each individual force according to the research questions, which is why the rest 2.5 is divided by research question.

2.7 Conclusion

In summary, the above sections established which tools should represent Web 2.0 communication and collaboration tools; blogs, wikis and social networks. Then, the importance of increasing employee usage rates and considering employee perceptions in the formation of technology strategies was highlighted in this chapter, to emphasize the importance of answering the research question. The last section in this chapter was dedicated to explaining Rogers five forces theory in detail. The next chapter is explains the methodology in order to evaluate part a) and b) of each of the above research questions.

3. Methodology and Data Collection

3.1 Introduction

This chapter explains how the research questions are analyzed in the following chapter, Results' Analysis. The first section begins by explaining the procedure used to analyze the research questions. The second section justifies the selection of this particular procedure. The third section presents propositions based on the previous research done on the research questions and hypotheses according to these propositions. The fourth section explains the statistical parameters which are applied to the hypotheses during the analysis. The fifth section characterizes the sample population from the primary data collected. Lastly, the sixth section explains limitations with using this methodology.

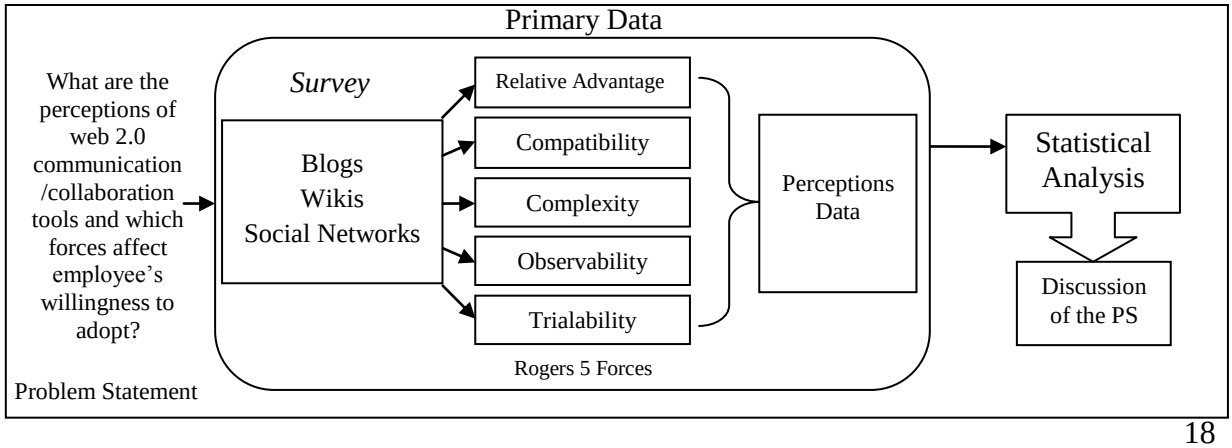
3.2 Research Design and Statistical Procedures

3.2.1 Introduction

Recalling the research questions listed in the introduction, there are two parts to every research question. The first part evaluates overall perception of each tool according to one of the five Rogers forces. The second part evaluates whether said Rogers five force is correlated with the willingness to adopt the tool. This section explains the procedure that is used to answer both parts of each of the research questions. It begins by presenting the dissertation's research model. The survey design is then explained along with the particular procedure that is applied to the data collected from the survey.

3.2.2 Research Model

This dissertation uses the model below in order to answer the problem statement:



The problem statement, presented on the left, is answered by gathering primary data based on a survey. The survey evaluates perceptions on the three tools according to the Rogers five forces. Recall that the five forces are also the structure of the research questions. The outputted perception data is then analyzed using statistics. At this point, the dissertation returns back to the problem statement and the findings are discussed.

3.2.3 Survey Design

To suggest an answer to both parts of the research question, primary data is collected via an online survey on Google Forms. There is a page dedicated to each tool. Users are asked whether they already use the tool in the workplace (yes or no), and then are asked several questions based on the Likert scale dedicated to four of the five forces: relative advantage, complexity, trialability and observability and also questions the overall willingness to adopt the tool in the workplace. A fourth page evaluates compatibility (also using the Likert scale) as it would be redundant to repeat this step for each tool due to the nature of the force, and also questions the age of the respondent. Appendix D breaks down each question and what each question evaluates. The survey was distributed online via LinkedIn, on a McMaster University forum, and throughout my e-mail contacts. Please refer to chapter 3, section 7 for important notes about the limitations of this method.

3.2.4 Research Question Response Procedure

The data collected from the survey is exported into Microsoft Excel. First, Likert scale answers are coded from 1-5: 1 – Strongly Disagree, 2 – Disagree, 3 – Neither Agree nor Disagree, 4 – Agree and 5 – Strongly Agree. A few of the questions operate on a reverse scale, as justified in chapter 3, section 3.5 below. Answers are then divided into separate books by age; under 18, 19-29, 30-49 and 50+, and by separate sheets according to each tool. Unusable data is removed, namely respondents who have not worked before or did not fill out all the questions in the compatibility section.

Since the dissertation focus on implementing these tools in the workplace, those who have responded “Yes” to the control question of whether they have used the tool in the workplace before, have been discluded from analysis. The data left over, namely those who have never used x tool before, is used to answer part a) and part b) of each research question.

All the questions evaluating each force are grouped together to calculate a score for each respondent using the median – this is referred to as *the individual [force] score*. For example, there are five questions evaluating "relative advantage" and for each respondent, the median is taken to represent that user's perception of relative advantage of the tool – so each respondent has an individual relative advantage score. The median of all of the individual [force name] score is the *overall [force name] score*. There is also a median calculated for each of the questions that compose the force score. For example, since overall relative advantage score is evaluated by understanding the perception of cost-effectiveness, there is also an *overall [question] score*, in this case overall cost-effectiveness score. Lastly, there is an *overall willingness to adopt score* for every tool. These three scores help answer the research questions.

The overall [force] score answers part a) of each question. The overall [question] score provides insight as to where the score came from, to more specifically understand the overall perception of each tool.

Part b) is answered by running a regression analysis on the overall force scores. Each individual force is treated as an independent variable, and the willingness to adopt score is the dependent variable. This is done for each the force and the willingness to adopt for each tool. This results in three multiple regression models, which are tested for significance. Using Excel's ANOVA output, the models and then forces whose coefficients pass the significance test (explained in chapter 3 section 5) are said to be correlated with the willingness to adopt. Then, these results are analyzed in the following chapter, results' analysis.

3.2.5 Conclusion

The sections above outlined the structure of the survey, and the procedure used to analyze the primary data derived from the survey. This primary data is necessary in order to answer the research questions, and thus the problem statement of this dissertation. The following section explains why this procedure was chosen; the justification section.

3.3 Research Model and Statistics-Related Justifications

3.3.1 Introduction

This section is devoted to justifying the four principal reasons for following the procedure mentioned above. First, the overall inspiration for the particular model is explained. Then, reasoning for the Likert scale particulars are presented. Then, the choice of using multiple regression models in particular as opposed to other methods is discussed. Lastly, some special treatments of the data are discussed.

3.3.2 Overall Model Inspiration

The statistical procedure chosen to answer part b) of the research questions, to understand which factors impact willingness to adopt, is inspired after customer satisfaction surveys. These surveys ask questions concerning quality dimensions (such as professionalism, accessibility, etc.) and see how much each dimension is correlated with the overall customer service (Hayes 1998). This information can then be interpreted to find what areas need more attention, etc. (Hayes 1998). The same idea is applied to this survey; rather than quality dimensions, there are five forces, and instead of overall customer service, we measure willingness to adopt.

3.3.3 Likert Scale Interpretation

In this dissertation, the Likert scale it is treated as interval data, rather than ordinal. There is much controversy whether this is appropriate or not, as it is often done (Jamieson 2004). Since the regression analysis is only used to see whether there is a correlation or not, rather than how much of a correlation, this dissertation treats the data as interval.

Furthermore, the median has been picked as the method to measure central limit, as opposed to the mode or the mean. The mean is not suggested as the best measure of data centrality with Likert scales as it becomes difficult to interpret what the numbers mean (Hayes 1998). The mode is easiest to interpret according to the Likert scale, when looking at the data as a whole the median seems to best represent the findings.

Lastly, a 5-point Likert scale has been chosen. Scores of 1 and 2 on the Likert scale, corresponding to strongly disagree and disagree respectively, are sometimes referred to as "negative" perspectives in this dissertation. In addition, scores of 3 on the Likert scale, representing neither agree nor disagree, are interpreted as a neutral stance on the force analyzed. Lastly, 4 and 5, agree and strongly agree on the Likert scale respectively, are sometimes referred to as positive stances on the forces.

3.3.4 Multiple Regression Choice

For the correlation analysis, the data was analyzed using multiple regression analysis, appropriate for interval treated data. Correlation analysis does not take into account cause and effect, and thus it would not be appropriate to use (Hayes 1998). In addition, simple regression analysis is not as appropriate as multiple regression analysis, since the Rogers theory states that the independent variables tend to overlap slightly which makes multiple regression analysis a more appropriate choice (Hayes 1998, Rogers 1995).

3.3.5 Special Treatments of Data

The following questions from the survey (Appendix D) used reverse scales when they were coded: "I find it difficult to use ____", "My workplace follows strict work procedures", "My workplace is very traditional". This means that instead of 1 on the Likert scale representing "Strongly Disagree", in this case it represented "Strongly Agree". This was done in order to simplify the report of findings, so higher Likert scale intervals would suggest higher five forces scores, which by the theory improves the willingness to adopt (Rogers 1985).

3.3.6 Conclusion

The above information for the justification section aimed to clarify why the procedure explained in section 2 was selected. It cited the procedures' inspiration, clarified the choice of use of the controversial Likert scale, explained why the dissertation opts to use multiple regression analysis and explains some special treatments of the data. At this point, it is time to present the actual hypotheses that are tested using this procedure.

3.4 Hypotheses

Hypotheses are necessary to answer part b) of the research questions, which focus on statistical correlations. The hypotheses are based on the research done on the five forces already presented in the Literature Review (Chapter 2). To develop the hypotheses, first the research question is presented, and then propositions formed based on the five forces literature review research. The hypotheses are formed from these propositions.

Each question has two hypotheses. The null hypothesis implies that b_0, the slope of the independent variable's coefficient according to the ANOVA output, is 0. This suggests no correlation between the independent and the dependent variable. The dependent variable is always the willingness to adopt [tool]. H_1 suggests that $b_1 \neq 0$, implying there is correlation between the independent and the dependent variable. There are two hypotheses for every research question. Chapter 4 presents the findings for these hypotheses.

1. Do employees a) perceive a *relative advantage* in the use of Web 2.0 tools, and b) is it correlated with their willingness to adopt it blogs/wikis/social networks in the workplace?

Revising from chapter 2, section 6.3, the Rogers five forces theory states that relative advantage positively influences the decision to adopt (Rogers 1995). Thus the proposition and hypotheses for part b) of the research question is (Rogers 1995):

Proposition 1: Perceived relative advantage is correlated with willingness to adopt Web 2.0 communication/collaboration technologies.

H_0: Relative advantage $b_0 = 0$; Perceived relative advantage is not correlated with the willingness to adopt blogs, wikis or social networks.
H_1: Relative advantage $b_1 \neq 0$; Perceived relative advantage is correlated with the willingness to adopt blogs, wikis or social networks.

2. Do employees a) perceive the tools as *compatible* with the nature of their work and the organizations values, and b) is this compatibility correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

For part b) of the research question, based on research from section 2.6.4, the Rogers five forces theory states that an individual's compatibility with the technology influences the decision to adopt (Rogers 1995). Thus the proposition and consequent hypotheses are:

Proposition 2: Perceived compatibility of Web 2.0 technologies is correlated with willingness to adopt Web 2.0 tools.

H_0: Compatibility $b_0 = 0$; Perceived compatibility is not correlated with the willingness to adopt blogs, wikis or social networks.
H_1: Compatibility $b_1 \neq 0$; Perceived compatibility is correlated with the willingness to adopt blogs, wikis or social networks.

3. Do employees a) perceive the tools as difficult to use [*complexity*], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

The scale has been reversed for this section, and this is justified in chapter 3 section 3.5. This is simply to make it so that high scores in all five areas would correspond to a high willingness to adopt to facilitate the statistical analysis. According to the theory from chapter 2 section 6.5, complexity is negatively related with the decision to adopt technologies. Thus the proposition and hypotheses according to this theory are:

Proposition 3: Perceived complexity [ease of use] of Web 2.0 communication technologies is correlated with the willingness to adopt in the workplace.

H_0: Complexity $b_0 = 0$; Perceived complexity is not correlated with the willingness to adopt blogs, wikis or social networks in the workplace.
H_1: Complexity $b_1 \neq 0$; Perceived complexity is correlated with the willingness to adopt blogs, wikis or social networks in the workplace.

4. Do employees a) feel they know how to use the tools [*trialability*], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

According to the theory Rogers' theory covered in chapter 2, section 6.6, trialability influences the decision to adopt (Rogers 1995). The proposition and hypotheses become: (Rogers 1995):

Proposition 4: Perceived trialability is correlated with the willingness to adopt Web 2.0 technologies.

H_0: Trialability $b_0 = 0$; Perceived trialability is not correlated with the willingness to adopt blogs, wikis or social networks.
H_1: Trialability $b_1 \neq 0$; Perceived trialability is correlated with the willingness to adopt blogs, wikis or social networks.

5. Do employees a) perceive others using the tools [*observability*], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

The theory from chapter 2, section 6.7 states that observability influences the decision to adopt (Rogers 1995). The proposition and consequent hypotheses are:

Proposition 5: Perceived observability is correlated with the willingness to adopt Web 2.0 technologies.

H_0: Observability $b_0 = 0$; Perceived observability is not correlated with the willingness to adopt blogs, wikis or social networks.
H_1: Observability $b_1 \neq 0$; Perceived observability is correlated with the willingness to adopt blogs, wikis or social networks.

The hypotheses above are tested according to the parameters discussed in the next section, Unit of Analysis for each research question.

3.5 Unit of Analysis

A minimum sample population of 30 was established in order to comply with central limit theorem for normal distribution of population. The population is unknown.

The ANOVA output of the regression analysis is analyzed to answer part b) of the research questions. The returned *r* value (Multiple R in Excel) of the model explains how linear the data is, as it represents the slope of the line (Chandler-Gilbert). The r^2 value highlights how accurate the linear model is at explaining the variance (Chandler-Gilbert). The data is treated at a 95% confidence level (naturally, at a significance level of $\alpha = 0.05$). The slope of each independent variable (b_n, the correlation coefficient) is analyzed to see whether it is correlated with the dependent variable. The test to see if the slope is accurate is done by investigating the confidence interval. If 0 is contained within the confidence interval at 95%, then this means that there is probably no correlation between the independent and dependent variables. The P-test is then done to see the likelihood of whether output from the confidence interval is accurate. If p-value is less than the 0.05 significance level, then the data is considered significant and thus correlated with the dependent variable at the 95% confidence level.

The forces are represented as follows (independent variable, coefficient); relative advantage (x_1), compatibility (x_2), complexity (x_3), trialability (x_4) and observability (x_5).

3.6 Sample Population Characteristics

There were a total of 268 respondents to the survey. A number of respondents were excluded from the analysis either due to age or improperly filled out forms. The age group Under 18 and 50+ only returned 5 and 21 respondents respectively. According to the previous section, Unit of Analysis, these respondents could not be included in the analysis because they did not meet the sample population requirements ($n > 30$). Moreover, 26 and 3 respondents from the 19-29 and 30-49 age group were not included due to their failure to answer all questions. Therefore, only 212 respondents were eligible for analysis. Appendix C presents the details of response rates according to age and tool.

The sample population investigated is aged 19-49. This represents two age groups in the survey: 19-29 and 30-49. The survey was presented to McMaster University students via

forum, to McMaster University alumni via LinkedIn and e-mailed to former colleagues and their respective networks. The majority of respondents are likely of Canadian nationality. It is assumed that all of the respondents are able to navigate the Internet and use computers, since they managed to complete the online survey. There is a high likelihood that the majority, if not all, respondents are either attending or graduated university students. Due to the nature of publishing links on the Internet, it is difficult to predict the population size. These distribution outlets were not only chosen simply due to the author's available networks, but also since it is assumed that post-secondary students are most likely to be in an office setting when employed. Naturally, these types of tools require accessibility to the Internet and group work to be used.

3.7 Limitations with the Procedure

The largest problem with this procedure is centered in the sample population evaluated. Note that the population surveyed was indiscriminate; the available data on Web 2.0 tool usage, the ones previously discussed in this dissertation, do not present data from particular sectors, industries or organizations, and thus to remain consistent, this survey did not collect information on this either. It is limited to analyzing employee perception differences according to age.

All of the data was collected online, which needs to be considered when analyzing this data. Populations without much exposure to the Internet or computers are assumed to output significantly different results, when presented the same survey. Even more importantly, some of the data was collected using social networks (LinkedIn) which would definitely influence the scores for that category. This was done because the author of this dissertation was not confident in their ability to garner enough responses to be able to form an analysis at all, due to a lack of resources. This is a very profound bias. In retrospect, if time was not an issue, the surveys would have been distributed differently.

3.8 Conclusion

Establishing and justifying an appropriate methodology is essential to analyzing the data for the research questions. This chapter presented the procedure which is followed to do this, why this procedure was selection, the hypotheses for part b of the research questions, and some limitations with the logic of this section. The next chapter applies this methodology in order to come closer to solving the problem statement.

4. Results' Analysis

4.1 Introduction

The previous chapter explained and justified the chosen methodology to answer the research questions. This chapter is dedicated to applying said methodology and presenting the results. Recall that every research question is divided into two parts, and is treated with different procedures. This chapter presents the results to these two tests according to the order of the research questions. Due to the nature of multiple regression analysis however, there are only three regression models to evaluate all of the five factors and the tools. As such, first the three tools regression models' significance is presented. Then, the chapter is divided per research question and the procedure is followed as previously explained.

4.2 Multiple Regression Output Significance

For the full equation for each of the regression models, please see Appendix E. The results from the multiple regression models for each tool are shown below, in table 6. The r and r^2 results displayed show how linear the models are. For the measures "Under 18" and "50+", the sample population returned was inferior to 30.

	Under 18	**19-29**			**30-49**			50+
		r	r^2	Significance F	r	r^2	Significance F	
Blogs	N/A	**0.405**	**0.164**	**0.000**	**0.640**	**0.410**	**0.006**	N/A
Wiki	N/A	**0.619**	**0.383**	**0.000**	0.267	0.071	0.792	N/A
Social Networks	N/A	0.342	0.118	0.207	**0.723**	**0.522**	**0.000**	N/A

Table 6: Multiple Regression Model Significance

According to the table above (table 6), the information returned from 19-29 social networks, and 30-49 wiki's are considered insignificant. Not enough of the variance in the dependent variable can be explained through the independent variables to be considered as a linear relationship, as seen by the F-test returning values above the significance level, $\alpha = 0.05$. This information is thus not be mentioned in part b) of the analysis below, as it is already evident that there is no independent variable that influences willingness to adopt.

The models in bold, presented in table 6, represent statistically significant regression lines. The *r* and r^2 values represent how linear the data is, and how much of the variance is explained through the regression line (Chandler-Gilbert). The main purpose of the research questions is not to explain the degree of correlation, however.

4.3 Findings

4.3.1 Introduction

This section is divided by each research question theme. Please keep in mind the information from the above section, which states that the exclusion of the part b) regression analysis for respondents age 19-29 for social networks and age 30-49 for wikis.

4.3.2 Research Question 1 – Relative Advantage

Research Question 1: Do employees a) perceive a relative advantage in the use of Web 2.0 tools, and b) is it correlated with their willingness to adopt it blogs/wikis/social networks in the workplace?

The following table, table 7, presents the median score for relative advantage in each age group and for each tool, in order to answer part a) of the research question.

	19-29		30-49	
Tools	**Score**	**n**	**Score**	**n**
Blogs	3	141	3	36
Wikis	3	122	3	37
Social Networks	4	62	4	34

Table 7: Relative Advantage Overall Perception Scores

The results returned from the users aged 19 -49 suggested that social networks have a relatively positive perceived relative advantage. The median returned, 4, corresponds to an "agree" on the Likert scale, suggesting that the sample population generally agrees that these tools are overall perceived as useful for communication and collaboration.

On the other hand, both blogs and wikis for those aged 19-49 returned medians of 3, which correspond to "neither agree nor disagree" on the Likert scale. This suggests that many users are unsure of whether there is a relative advantage or not in the use of these tools for communication and collaboration.

To see where the relative advantage is perceived, please refer to Appendix F. Overall, relative advantages in these Web 2.0 tools seem to be perceived the most in their ability to be cost-effective ways of communicating. Social networks aged 30-49, returned all five questions as 4s, suggesting that they agree that these tools bring all five of the relative advantages and none in particular is standout. With the rest of the respondents, the lowest values tend to appear in their ability to increase the speed and the ease of communication. Aside from the results displayed from 19-29 year olds in the social networking category, subjects neither agree nor disagree with blogs or wikis' abilities to synchronize or exchange information.

Part b) of the research question is answered in the next table, table 9. This investigates whether the willingness to adopt a certain tool is correlated with the perceived relative advantage. Below, the multiple regression results are presented, recall all insignificant models have not been included.

	BLOGS		WIKIS		SOCIAL NETWORKS	
Ages	**Slope**	**P-value**	**Slope**	**P-value**	**Slope**	**P-value**
19-29	0.296	0.005	0.51	3.780E-08	-	-
30-49	0.052*	*0.820**	-	-	0.138*	*0.511**

Note: Those labelled with * contain 0 in their confidence interval.
Table 9: Relative Advantage Regression Output

Due to a high probability that there is no linear relationship between the independent and dependent variables, data from the 30-49 age groups for blogs' and social networks suggests that there is no linear relationship between willingness to adopt and relative advantage, and thus H_0 is accepted.

In the 19-29 age category, both blogs and wikis' reported a positive linear relationship between relative advantage and willingness to adopt. For every increase in relative advantage for blogs, there is an estimated 29.6% increase in the willingness to adopt. Likewise, for every increase in relative advantage for wikis, there is an estimated 51% increase in the willingness to adopt.

In conclusion, for part a), users generally agree that there is a relative advantage in communication and collaboration with the use of social networks. For wikis and blogs, subjects debate whether there is or is not a relative advantage in the usage of these tools. The

perceived relative advantage is likely a result of high perceived cost-effectiveness of these tools. For part b), willingness to adopt blogs and wikis for those aged 19-29 is correlated with relative advantage.

4.3.3 Research Question 2 – Compatibility

Research Question 2 - Do employees a) perceive the tools as compatible with the nature of their work and the organizations values, and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

Part a) is addressed first. The following table, table 10, presents the median score for compatibility in each age group and for each tool.

	19-29		30-49	
Tools	**Score**	**n**	**Score**	**n**
Blogs	4	141	4	36
Wikis	4	122	4	37
Social Networks	4	62	4	34

Table 10: Compatibility Overall Perception Scores

Across all of the received data for blogs, wikis and social networks listed above, all six groups of data returned a median score of 4 for compatibility. This suggests that the sample populations generally agree that these tools are compatible either with the way the nature of their jobs, and or with the organization's values.

In the literature review, it was explained that there are two main areas to investigate when analyzing compatibility in the workplace: whether the company has appropriate resources, and whether the individual has an application and skill for its general use.

Appendix G presents the seven factors divided in between these two topics. It is unsurprising that the individual compatibility data for company resources, employee skill and function and company policy is identical across tools for the 19-29 age range, and likewise for the 30-49 age range. It is possible that those who are not using one of the tools in the workplace are likely not using any of the other tools. The only difference appears in whether the company follows strict procedures or not, in which case the age group 30-49 report a very slightly elevated level of independence at 3.5 rather than 3.

Participants strongly agreed with their ability to navigate on the Internet and with the use of computers with internet service on the job. Furthermore, participants agreed that they in general use group work to complete tasks. The lowest numbers appear in the section of company policy, suggesting that employees perceive a relatively lower compatibility on the company's attitudes on using new technologies, or picking the way they would like to do their own work. Regardless, these numbers still fall into the category of neither agree nor disagree.

Therefore, participants seem to be in atmospheres that permit technological adoptions, and in particular are able to access the Internet at work and navigate around freely.

Part b) is addressed here. The next section explains whether compatibility is correlated with participant's willingness to adopt.

	BLOGS		WIKIS		SOCIAL NETWORKS	
Ages	**Slope**	**P-value**	**Slope**	**P-value**	**Slope**	**P-value**
19-29	0.188*	*0.400**	0.135*	*0.245**	-	-
30-49	-0.062*	*0.849**	-	-	0.001*	*0.998**

Note: Those labelled with * contain 0 in their confidence interval.

Table 12: Compatibility Regression Output

We must accept H_0 for all three models because as seen across all tools and ages in table 12, compatibility is not correlated with willingness to adopt. All of the regression data collected yields p-values above the significance level, ranging from a 40% to a 98% chance that the test variables are more extreme than observed. All of this information does not suggest a significant linear correlation is present. The null hypothesis, that the coefficient is zero, must be accepted.

In conclusion, overall, employees have the appropriate resources and jobs that may profit from using web based collaboration tools. Their company's policy on adopting new technologies and deviating from work procedures return a neutral score, suggesting that they are overall neither fitting nor restrictive policies. There is no evidence of linear correlation of the independent variable compatibility with the dependent variable willingness to adopt, and thus H_0 is accepted for all tools and ages.

4.3.4 Research Question 3 – Complexity

Research Question 3 - Do employees a) perceive the tools as difficult to use [complexity], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

Again, the analysis begins with part a).The following table, table 13, presents the median score for complexity in each age group and for each tool.

	19-29		30-49	
Tool	**Score**	**n**	**Score**	**n**
Blogs	4	141	4	36
Wikis	4	122	3	37
Social Networks	5	62	4	34

Table 13: Complexity Overall Perception Scores

As mentioned before, the complexity scale measures in fact the ease of use, with lower scores indicating complexity (see chapter 3, section 3.5 for justification). The data suggests that 19-29 year olds believe that social networks are very easy to use. Blogs and wikis in this age group are also considered easy to use. In the 30-49 age group, they agree with the ease of use of blogs and social networks, but are neutral about whether wikis are easy to use or not.

Table 14, shown below, displays the results of the regression analysis for part b) of research question 3.

	BLOGS		WIKIS		SOCIAL NETWORKS	
Ages	**Slope**	**P-value**	**Slope**	**P-value**	**Slope**	**P-value**
19-29	0.0142*	*0.891**	0.008*	*0.937**	-	-
30-49	0.074*	*0.772**	-	-	0.438*	*0.118**

Note: Those labelled with * contain 0 in their confidence interval.

Table 14: Complexity Regression Output

The multiple regression analysis returned confidence intervals containing 0, and the probabilities that these results are even more extreme than observed range from 57% to 93%. Therefore, we must accept the null hypothesis that there is no linear relation between complexity and the willingness to adopt.

In conclusion, for part a) the 19-29 age range participants agreed that these are easy tools to use. From ages 30-49, the subjects rated blogs and social networks as easy but were unsure

about the ease of use of wikis. For part b) of the above research question, the regression output suggested no linear relationship between ease of use and their willingness to adopt.

4.3.5 Research Question 4 – Trialability

Research Question 4 - Do employees a) feel they know how to use the tools [trialability], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

The following table, table 15, presents the median score for trialability in each age group and for each tool to answer part a).

	19-29		30-49	
Tool	**Score**	**n**	**Score**	**n**
Blogs	4	141	4	36
Wikis	4	122	4	37
Social Networks	5	62	4.5	34

Table 15: Trialability Overall Perception Scores

From the table above, it is clear that overall all the valid responses have experienced the use of blogs, wikis and social networks in the past.

	BLOGS		WIKIS		SOCIAL NETWORKS	
Ages	**Slope**	**P-value**	**Slope**	**P-value**	**Slope**	**P-value**
19-29	0.071	0.441*	0.211	0.040	-	-
30-49	0.102*	0.584*	-	-	0.613	0.009

Note: Those labelled with * contain 0 in their confidence interval.

Table 16: Trialability Regression Output

Almost all of the coefficients are close to zero, containing 0 within their confidence interval at 95% confidence, and scoring a p-value higher than the 0.05 significance level.

Trialability is correlated with the willingness to adopt wikis from the 19-29 age group; a 21% estimated increase in the willingness to adopt wikis in the workplace due to an increase in the independent variable. Furthermore, social networks willingness to adopt for those aged 30-49 are also correlated with trialability.

Therefore, subjects are experienced with using blogs, wikis and social networks. In the case of 19-29 year olds, this usage has contributed to their willingness to adopt wikis, and for the case of 30-49 year olds, this usage has contributed to their willingness to adopt social networks.

4.3.6 Research Question 5 – Observability

Research Question 5 - Do employees a) perceive others using the tools [observability], and b) is it correlated with their willingness to adopt blogs/wikis/social networks in the workplace?

The following table, table 17, presents the median score for observability in each age group and for each tool. It assists in answering part a) of the research question above.

	19-29		30-49	
Tool	**Score**	**n**	**Score**	**n**
Blogs	4	141	4	36
Wikis	4	122	3	37
Social Networks	5	62	5	34

Table 17: Observability Overall Perception Scores

Again, social networks report the highest score in this section; participants overall strongly agreeing with both seeing and hearing others use social networks. Those aged 19-49 agree that they have heard or seen people use blogs, and likewise for those in the 19-29 age category for wikis. Participants aged 30-49 neither agreed nor disagreed with hearing or seeing others use wikis.

To answer part b, one must return to the regression analysis.

	BLOGS		WIKIS		SOCIAL NETWORKS	
Ages	**Slope**	**P-value**	**Slope**	**P-value**	**Slope**	**P-value**
19-29	0.191	0.044	0.123*	*0.200**	-	-
30-49	0.858	0.003	-	-	0.566*	*0.131**

Note: Those labelled with * contain 0 in their confidence interval.
Table 18: Observability Regression Output

Social networks and wikis contain 0 in their confidence intervals, and have sufficiently strong probabilities that there is even more variance in their data. Thus, for these categories, the null hypothesis must be accepted: that there is no linear correlation between the independent variable and the dependent variable. However, for blogs in both age groups, there is evidence

of linear regression between the variables. For every increase in observability, there is a 19.1% estimated increase in the willingness to adopt in the 19-29 age group. In the 30-49 age group, there is an 85.8% estimated increase in the willingness to adopt blogs.

In summary, the sample populations generally agree (except for wikis for people aged 30-49 since they neither agree nor disagree) that they have heard of or seen people discuss these tools. Social networks have a very high observability score. Blogs report a positive linear regression with observability and their willingness to adopt, from people aged 19-49.

4.3.7 Conclusion

Chapter 4, section 3 presented the findings for the five research questions. Section 3.2 presented the six multiple regression model significances, and determined that two of the models do not show any correlation whatsoever. These were not included in section 3.3, the findings.

4.4 Conclusion

This Results' Analysis chapter was dedicated to applying the methodology to the primary data collected and presenting rudimentary conclusions to the research questions. The next chapter is dedicated to analyzing what these conclusions actually mean in relation to the theories used in this dissertation, along with suggesting ways to use the information in practice.

5. Main Conclusions and Future Research

5.1 Introduction

The conclusions chapter focuses on answering the research question and consequently, the problem statement. These responses are applied to both the theory that has been discussed prior, and also the practical implications of these responses in technology strategy. Lastly, limitations and areas for future research are presented before concluding the dissertation.

5.2 Research Question Conclusions

To recap, the research question was to better understand a) employee perceptions concerning blogs, wikis and social networks according to each factor, and b) to understand what influenced their willingness to adopt such technologies, according to each factor.

For part a), it is clear that each tool is understood slightly differently. This information is summarized in Appendix H and I. Beginning with research question 1, relative advantage, it is evident that in both age groups, respondents were unsure of where the relative advantage in the use of blogs and wikis came from. However, they also both agreed that social networks do have a relative advantage. This relative advantage comes mostly from the perception of the tools as being cost-effective (Appendix F). For research question 2, compatibility, both age groups perceive their workplaces, and their functions as compatible with communication and collaboration Web 2.0 tools. For research question 3, there is evidence of perception differences between the two age groups. They both perceive blogs as easy to use, however age group 30-49 are unsure about whether wikis are easy to use or not whereas the 19-29 year olds affirm that they are. Both groups perceive social networks as easy to use, but in particular the 19-29 year olds strongly agree that they are easy to use. For research question 4, trialability, both groups overall have experience with trying to use blogs, wikis and social networks. Lastly, both groups have heard and seen others using blogs and social networks, and the 19-29 year olds have seen and heard of wikis. However, the 30-49 year olds returned an overall score of 3 for observability, suggesting that overall they are less aware of others using wikis.

When it comes to part b) of the research questions, the relationships between the factors and the willingness to adopt was less obvious. The majority of the correlations were not evidently

linear, and H_0 was accepted, since the slopes were too miniscule to suggest a linear relationship. Compatibility and complexity in none of the six regression models demonstrated any correlation with the willingness to adopt.

The null hypotheses were rejected for three of the factors, but not across all three tools. The null hypothesis was rejected for (and thus, a correlation was found between): relative advantage for blogs and wikis in age group 19-29, trialability for wikis (19-29) and social networks (30-49) and observability in blogs for both age groups. This is summarized in the table below, table 21. Recall that to reject H_0 signifies that $b_n \neq 0$.

Null Hypothesis accepted or rejected?						
	BLOGS		WIKIS		SOCIAL NETWORKS	
RESEARCH QUESTION	19-29	30-49	19-29	30-49	19-29	30-49
1-Relative Advantage	**Reject H_0**	Accept H_0	**Reject H_0**	Accept H_0	Accept H_0	Accept H_0
2 - Compatibility	Accept H_0	Accept H_0	Accept H_0	Accept H_0	Accept H_0	Accept H_0
3 - Complexity	Accept H_0	Accept H_0	Accept H_0	Accept H_0	Accept H_0	Accept H_0
4 - Trialability	Accept H_0	Accept H_0	**Reject H_0**	Accept H_0	Accept H_0	**Reject H_0**
5 - Observability	**Reject H_0**	**Reject H_0**	Accept H_0	Accept H_0	Accept H_0	Accept H_0

Table 21: Summary of Null Hypotheses Acceptances/Rejections

5.3 Problem Statement Conclusion

It is time to return to the problem statement and suggest an answer, the question being: *what are employee perceptions on blogs, wikis and social networks according to the Rogers five forces, and which of these impacts their decision to adopt these Web 2.0 communication and collaboration technologies in the workplace?*

In response to the problem statement, blogs are perceived in a positive light, and for the 19-29 age group, observability and relative advantage impact the willingness to adopt blogs. For the 30-49 age group, observability impacted the willingness to adopt blogs.

Furthermore, wikis are also perceived in a positive light for those aged 19-29, and two forces, relative advantage and trialability impacted the willingness to adopt. Wikis for those aged 30-49 are neither perceived in a positive nor a negative light, and no factor was found to be correlated with the willingness to adopt.

Lastly, social networks for both age groups are perceived in a positive light but only one factor, trialability, is correlated with the willingness to adopt, and this is only in the 30-49 age group.

5.4 Implication for Theory

In this section, the findings are judged against two theories used throughout the dissertation. The first discusses the Rogers five forces and its relation with age. The second and last paragraph discusses the tools' qualifications as communication and collaboration tools.

It is interesting to note the difference in overall perception of the five factors and the willingness to adopt. Despite similar overall perceptions, the two age groups presented different motivations for their willingness to adopt. Moreover, when referring back to Appendix H and I, two different patterns are suggested with the data. For those aged 19-29, the overall perception values are higher than the willingness to adopt values. On the other hand, those aged 30-49 showed overall perception values lower than the willingness to adopt values.

The tools that were identified as key communication and collaboration tools, blogs, wikis and social networks, also were questionable on the satisfaction of these functions. Looking back at Appendix F, only social networks are considered by the general sample population as a way to synchronize, exchange, facilitate and speed up communication. Blogs and wikis resulted in lower scores in these areas, and the highest scores in being cost-effective. For communication tools, they are more recognized for their cost savings than their ability to communicate. On the other hand, in the literature review it was mentioned that those dissatisfied with their investment in Web 2.0 tools did not seem to know how to use them to bring value to their companies. The survey data supports this claim; users were unsure about the advantages of using these technologies, only assuming that it was in the ability to save costs.

5.5 Implications for Professional Practice

This section is dedicated to applying the results to the idea of incorporating Web 2.0 technologies in the workplace – in particular, strategies which wish to use the tools to communicate and collaborate internally. With this information, insights on important topics to recognize when considering the employee factor of internal technology change can be applied to technology strategies when the data is interpreted. The data can be interpreted in many ways, but here are some examples:

When it comes to considering whether to implement a training program, an executive should take into account that when it comes to these three technologies that the population is generally aware of what they are and how to use them, and not much time needs to be focused on technical instruction. However, there are lower scores in relative advantage across blogs and wikis, which may imply that most people do not know how to add value from the use of these technologies. Respondents particularly did not seem to firmly believe that blogs or wikis improve the speed or facilitate communication, and thus perhaps relying on other technologies to achieve these means may be more appropriate. Thus, the results suggest that training programs should place higher focus on instructing on how to apply content to benefit the company, rather than how to use the technology itself. According to Rogers theory, these "new" technologies are always compared to the preceding technology, so the use of these tools must present a relative advantage to the old tools to be considered more useful in the user's eyes (Rogers 1995).

Another possible application of this data is to recognize that the survey implied that from ages 19-49, observability influenced subject's willingness to adopt. If an executive wished to only encourage the use of these technologies but not mandate its use, it could be done by setting an example in the workplace. This line of thought is aligned with a project done by AT&T; instead of forcing users to use Web 2.0 technologies, they merely used an awareness campaign to encourage Web 2.0 for collaborative project management (Chui, Miller and Roberts 2009). The results were clear: "over a 12-month period, the use of technology rose to 95 percent of employees, from 65 percent" (Chui, Miller and Roberts 2009).

As people aged 19-29 recorded significant correlations with the willingness to adopt wikis due to the relative advantage and trialability factors, applied workshops encouraging users to try to use wikis along with explaining the advantages would work best to create users to encourage people to adopt the technology. Moreover, those aged 30-49 also showed correlation with trialability and the use of social networks, implying that once they sufficiently try to use the tool, they are more inclined to want to use it.

The last example shows that perceptions in the compatibility area for company policy concerning new technologies can use improvement. If executives are interested in using these technologies in the workplace without mandating their use, they need to ensure that the right kind of environment is present for users to attempt to use the technology. In companies with strict work procedures or old fashioned technology policies which do not already use this technology, adopting Web 2.0 to collaborate may not be likely. If the company would like to encourage adoption of these new age technologies, the data suggests that encouraging experimentation and employee empowerment which encourages the use of new technologies, are areas that generally need to be improved upon; this is since, overall, the populations were on the fence about company policy but were certain of their ability to access appropriate resources and were generally in jobs that required group work and Internet use.

5.6 Limitations

All of the data was collected online, which needs to be considered when analyzing this data. Due to the anonymity of the distribution, it is unsure which portion of the data was collected via connections to social networks. These two factors may contribute to a profound bias. In retrospect, if time was not an issue, this limitation would be avoided. Moreover, due to the networks available to the author, the sample population consists of Canadian university students and alumni.

Further limitations occur with a lack of respondents in the age groups under 18 and over 50. Under 18, although it lacking, is not as severe since they are not as present in the work force. More respondents in these categories would be required to make this a more complete investigation.

In addition, using a different framework to measure perception rather than the traditional Rogers five forces may garner different responses. It is possible it is not best suited for this type of analysis based on the findings.

5.7 Future Research

Based on the literature review and its relation to the findings, this section suggests three possible directions for future research. The first is based on the nature of this type of technology adoption. The second suggests researching the other uses for Web 2.0 tools other than communication and collaboration. Lastly, research based on how to add value to firms' using these tools is discussed.

There is a surprisingly low amount of research in the area of Web 2.0. In particular, it would be interesting to see research done on Internet technology adoption in firms, especially in the cases where employee adoption rates are correlated with the amount of measurable benefits (Bughin and Chui 2011). Since the Rogers five forces theory did not work as expected, perhaps implementing these new age Internet technologies diffuse differently than traditional technology adoptions. Evidence proving this true or false would be interesting to see.

Branching out to the other many Web 2.0 technologies is necessary to gain a better understanding of the challenges between employees in the transition to becoming an Enterprise 2.0 firm. This dissertation focused on communication and collaboration tools, but there are many other areas where Web 2.0 technology is regularly used, such as: knowledge management, CRM or innovation and training (Adriole 2000). Truly becoming Enterprise 2.0 is not limited to the use of communication and collaboration tools.

Finally, further research should be done on *how* to create value from the use of these tools – namely, to create or improve the quality of information. Adoption is clearly important, but useless without a way to gain benefit from them. The research presented in Chapter 2 explains that companies despite there being companies very satisfied with the adoption of Web 2.0 in their workplaces, there are dissatisfied adopters. This dissatisfaction is mostly attributed to not knowing how to add value using the tools in their companies – which is key to the success of these technologies. Thus, research on how to add value to companies using this technology is

lacking, and could potentially be very useful for those considering adopting Web 2.0 tools in the workplace.

5.8 Conclusion

This final chapter has summarized the conclusions to the research problems, which also consequently summarized the conclusions to the problem statement. This information was applied to both theory and practice in order to better understand what the findings may imply in both an academic direction and work environments. Subsequently, limitations were indicated with both the procedure and the results. Lastly, future research directions were suggested, inspired from the findings.

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7. Appendices

Appendix A: Communication and Collaboration Web 2.0 Tools

TOOL	%	TOOL	%
Wikis	67.1%	Internal Crowdsourcing	6.6%
Internal Blogs	42.1%	External Crowdsourcing	1.3%
External Blogs	11.8%	Internal Social Networks	25%
Microblogging	-	External Social Networks	13.2%
RSS Filters	17.1%	Video Sharing	-
Folksonomies	18.4%	Podcasts	-
Mashups	5.3%	Peer-to-Peer	-

Table Citation: Andriole 2010 – Communication and Collaboration Tools

Appendix B: Business and Web 2.0: Employee Use

MCKINSEY ANNUAL WEB 2.0 SURVEY – EMPLOYEE USE 2010					
	51%+	31-50%	11-30%	1-10%	DON'T KNOW
Blogs	21%	14%	26%	33%	6%
Mash-Ups	19%	15%	22%	33%	11%
Microblogging	23%	17%	23%	28%	9%
Peer-to-Peer	32%	15%	22%	17%	14%
Podcasts	18%	13%	27%	33%	9%
RSS	23%	17%	22%	29%	9%
Social Networking	45%	20%	16%	14%	6%
Folksonomies	23%	14%	22%	29%	12%
Video Sharing	24%	17%	21%	30%	8%
Wikis	33%	16%	27%	18%	6%

Table Citation: Interactive Feature on McKinsey Quarterly's website

Appendix C: Number of Responses by Age and Tool

Based on Age:

	RESPONDENTS	UNFILLED RESPONSES	EXCLUDED BASED ON AGE	TOTAL VALID RESPONDENTS
Under 18	6	1	5	0
19-29	189	26	0	163
30-49	52	3	0	49
50+	21	0	21	0
Total	**268**	**30**	**26**	**212**

Based on Tool:

	# WHO HAVE NOT USED AT WORK	# WHO HAVE USED AT WORK	% OF USAGE AT WORK
Blogs	177	35	16.5%
Wikis	159	53	25.0%
Social Networks	96	116	75.6%

Appendix D: Survey

QUESTION	WHAT IT EVALUATES	SCALE
Have you used a ___ in the workplace to communicate with other employees?	Control question: only those reporting "no" count.	Yes or No
I occasionally browse ____.	Trialability – Browsing	Likert Scale
I am familiar with how to (add content) to ____.	Trialability – Creating	Likert Scale
I am familiar with how to (add to pre-published content)	Trialability – Participating	Likert Scale
___ make it easier to synchronize information.	Relative Advantage – Synchronization	Likert Scale
I find it easier to exchange information through the use of ____.	Relative Advantage – Exchange information	Likert Scale
___ make it easier to contact people.	Relative Advantage – Facilitate communication	Likert Scale
I use ___ in order to contact people faster.	Relative Advantage – Increase speed of communication	Likert Scale
___ are a cost-effective way of communicating.	Relative Advantage – Cost Savings	Likert Scale
I find ___ difficult to use.	Complexity	Likert Scale
I have heard of many people using ____.	Observability – Heard of	Likert Scale
I have seen many people using ___.	Observability – Seeing	Likert Scale
I would be willing to use __ in the workplace to complete tasks.	Willingness to adopt	Likert Scale
It is easy to obtain technical support at my workplace.	Compatibility - Resources	Likert Scale
I find it easy to navigate on the Internet.	Compatibility – Employee Skill and Function	Likert Scale
I use computers and have Internet access while at work.	Compatibility – Resources	Likert Scale
My job requires group work to accomplish tasks.	Compatibility – Employee Skill and Function	Likert Scale
My job requires following strict procedures to accomplish tasks.	Compatibility – Technology Policy – Work Mandated Procedures	Likert Scale

My workplace does not care how I complete tasks as long as they are done well.	Compatibility – Technology Policy - Independence	Likert Scale
My workplace is very traditional.	Compatibility – Technology Policy - Culture	Likert Scale
My workplace encourages the use of new technologies.	Compatibility – Technology Policy - Culture	Likert Scale

Appendix E: Multiple Regression Models

	REGRESSION MODELS FOR AGES 19-29
Blogs	$y=1.7+0.28x1-0.0x2+0.014x3+0.07x4+0.2x5$
Wikis	$y=0.403+0.506x1+0.135x2+0.008x3+0.211x4+0.123x5$
Social Networks	$y=1.72+0.66x1+0.04x2+0.057x3-0.132x4-0.105x5$
	REGRESSION MODELS FOR AGES 30-49
Blogs	$y=-0.22+0.052x_1-0.062x_2+0.074x_3+0.102x_4+0.858x_5$
Wikis	$y=2.62+0.025x_1+0.012x_2+0.255x_3-0.273x_4+0.157x_5$
Social Networks	$y=-3.714+0.138x_1+0.001x_2+0.438x_3+0.613x_4+0.566x_5$

Appendix F: Relative Advantage Perception Scores

AGES	TOOL	COST-EFFECTIVE	INCREASE SPEED OF COMM.	SYNCHRONIZE INFO	EXCHANGE INFO	EASE CONTACT
19-29	Blogs	**4**	2	3	3	2
	Wikis	**4**	2	3.5	3	2
	Social Networks	**5**	**5**	4	4	4
30-49	Blogs	**4**	2	3	3	3
	Wikis	**4**	2	3	3	2
	Social Networks	4	4	4	4	4

Appendix G: Compatibility Perception Scores

	AGES 19-29			AGES 30-49		
	BLOGS	**WIKIS**	**SOCIAL NETWORKS**	**BLOGS**	**WIKIS**	**SOCIAL NETWORKS**
	Resources					
Technology	5	5	5	5	5	5
Tech Support	4	4	4	4	4	4
	Employee Skill and Function					
Ability to Use Net	5	5	5	5	5	5
Group Work	4	4	4	4	4	4
	Policy					
Work Mandated Procedures	3	3	3	3.5	3.5	3
Independence	4	4	4	4	4	4
Tech Culture	3.5	3.5	3.5	3.5	3.5	3.5

Appendix H: Summary of Perceptions for Ages 19-29

	BLOGS	WIKIS	SOCIAL NETWORKS
Relative Advantage	3	3	4
Compatibility	4	4	4
Complexity (Ease)	4	4	5
Trialability	4	4	5
Observability	4	4	5
Overall	4	4	5
Willingness to Adopt	3	4	4

Appendix I: Summary of Perceptions for Ages 30-49

	BLOGS	WIKIS	SOCIAL NETWORKS
Relative Advantage	3	3	4
Compatibility	4	4	4
Complexity (Ease)	4	3	4
Trialability	4	4	4.5
Observability	4	3	5
Overall	4	3	4
Willingness to Adopt	4	4	5